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Gravitational wave background from non-Abelian reheating after axion-like inflation

If a pseudoscalar inflaton couples to the topological charge density of a non-Abelian gauge field, it can decay into gauge bosons that may thermalize quickly due to their self-interactions. In the resulting medium, non-Abelian "strong sphaleron" interactions increase the thermal friction felt by the inflation field, which can in turn lead to a self-amplifing and efficient reheating after inflation. Presenting work published in 2201.02317, we compute a lower bound on the new physics (NP) contribution to a gravitational wave background resulting from such a process. We find that the amount of energy converted into gravitational waves is modest compared to the corresponding background from standard model interactions. This suggests that non-Abelian models may avoid the overproduction issues of some Abelian models.

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